Amendments to the Claims

This listing of claims will replace all prior versions of claims in the application.

Listing of claims:

Claims 1 - 9 (canceled)

10.(currently amended): A method for positioning a rudder of a ship wherein the rudder is driven by a rudder drive system in accordance with a rudder error determined by the difference between a ~~selected~~ rudder position ~~provided by~~ and a rudder order ~~from an autopilot or helm and a rudder position provided by a rudder repeatback signal~~, the rudder drive system including a solenoid energized at a set rudder <u>error</u> ~~position~~, said solenoid coupled to an hydraulic pump which is activated when said solenoid is energized, comprising the steps of:

establishing an energizing frequency for solenoid burnout protection thereby providing a burnout protection frequency;

<u>monitoring solenoid energizing frequency:</u>

determining when said <u>solenoid is being energized at an</u> energizing frequency <u>that</u> exceeds said burnout protection frequency; and

adjusting said <u>set rudder error to a</u> second set rudder <u>error</u> ~~position~~ when said energizing frequency exceeds said burnout protection frequency.

11.(currently amended) A method in accordance with claim 10 wherein said second set rudder <u>error</u> ~~position~~ is increased in said adjusting step.

12.(currently amended) A method in accordance with claim 10 wherein solenoid <u>energizations</u> ~~energizes~~ are monitored to determine said energizing frequency in said determining step.

13.(previously presented) A method in accordance with claim 10 wherein hydraulic pump activations are monitored to determine said energizing frequency in said determining step.

Claims 14 - 16 (canceled)

17.(currently amended)   A rudder positioning apparatus ~~in accordance with claim 14 wherein said rudder drive system~~ <u>for a ship</u> ~~includes~~ <u>including</u> an hydraulic system having ~~a~~ solenoid<u>s</u> energized at a ~~second~~ set rudder position <u>error,</u> ~~said solenoid coupled to a~~ <u>to activate</u> pump<u>s, of the hydraulic system,</u> ~~which is activated when said solenoid is energized, further including~~ <u>the rudder position errors being determined by the difference between a rudder position and a rudder order, comprising</u>:

    a frequency detector coupled to said hydraulic system to determine frequency of ~~turn on of~~ said hydraulic system <u>turn on</u>, and

    a solenoid turn on adjuster coupled to said solenoid of said hydraulic system and said frequency detector for ~~increasing said second~~ <u>adjusting said</u> set rudder position <u>error</u> when said frequency detector indicates that a predetermined frequency of solenoid <u>energizations</u> ~~energizes~~ has been exceeded.

18.(currently amended) A rudder positioning apparatus in accordance with claim 17 wherein said frequency detector is~~coupled~~~~to~~~~said~~ monitors activations of at least one solenoid in said hydraulic system.

19.(currently amended) A rudder positioning apparatus in accordance with claim 17 wherein said frequency detector is~~coupled~~~~to~~~~said~~ monitors turn-ons of at least one pump in said hydraulic system.

20.(currently amended) A rudder positioning apparatus in accordance with claim ~~14~~ 17 wherein said rudder position is provided by a rudder repeatback signal and further including a repeatback signal rate of change detector for monitoring operation of said rudder drive system.

21.(new)   A method for positioning a rudder of a ship in accordance with claim 10 further comprising the steps of:

determining a difference between a desired rudder stop position and rudder stop position after said rudder drive system is turned off;

comparing said rudder stop position to said desired rudder stop position to establish a rudder stop error; and

determining a stop position for said rudder in accordance with said rudder stop error such that said rudder stop position does not exceed a predetermined position tolerance.

22.(new)   A method for positioning a rudder of a ship in accordance with claim 21 wherein said determining step includes the steps of:

decreasing said stop position when said rudder stop error indicates that said rudder has stopped short of said desired rudder stop position; and

increasing said stop position when said rudder stop error indicates that said rudder has stopped at a position that exceeds said desired rudder stop position.

23.(new)   A method for positioning a rudder of a ship in accordance with claim 22 wherein said decreasing step includes the steps of:

subtracting said rudder stop error from said rudder stop position to provide an adjusted rudder drive system turn off; and

resetting said rudder stop position to said adjusted rudder drive system turn off.

24.(new)   A method for positioning a rudder of a ship in accordance with claim 22 wherein said increasing step includes the steps of:

adding said rudder stop error to said rudder stop position to provide an adjusted rudder drive system turn off; and

resetting said rudder stop position to said adjusted rudder drive system turn off.

25.(new)   A rudder positioning apparatus in accordance with claim 17 further including:

a rudder drive system that positions rudders in accordance with a rudder stop position error determined by differences between a selected rudder position and a rudder stop position achieved after rudder drive system turn off;

a rudder position turnoff adjuster coupled to said rudder drive system for resetting said turnoff in accordance with said rudder stop position error, thereby providing an adjusted turnoff.

26.(new)   A rudder positioning apparatus in accordance with claim 25 wherein said rudder position turnoff adjuster resets said turnoff by decreasing said turn off when said rudder stop position error indicates that an undershoot of said rudder order has occurred and increasing said turnoff when said rudder stop position error indicates that an overshoot of said rudder order has occurred.

27.(new)   A rudder positioning apparatus in accordance with claim 25 wherein said turnoff is reset by decreasing said turn off in accordance with a difference between said set rudder stop position and said rudder stop position error when an undershoot occurs and increasing said turn off in accordance with a sum of said set rudder stop position and said rudder stop position error when an overshoot occurs.